Lynx and Other Carnivore Surveys in Wisconsin in Winter 2003-2004

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The Wisconsin DNR listed the Canada lynx (*Lynx canadensis*) as a state endangered species in 1973, but removed lynx from the list in 1997, due to lack of evidence of any potential for a breeding population within the state. The U.S. Fish and Wildlife Service listed the lynx as a threatened species within the contiguous Unites States on 24 April 2000. States that were thought to have lynx included Wisconsin, Michigan, Minnesota and 10 other states. There has not been any evidence of a breeding population of lynx in Wisconsin in the 1900's (Thiel 1987, Wydeven 1998). Lynx are occasionally observed in the state, and up to 1% of bobcat hunters and trappers reported lynx sign in Wisconsin (Wydeven 1998). Therefore there is a need to determine more precisely if lynx are occurring in Wisconsin, and if so, determine distribution and breeding status of lynx in the state.

The Wisconsin DNR has cooperated with the U.S. Fish and Wildlife Service to search for gray wolves (*Canis lupus*) using snow track surveys since 1979 (Wydeven et al 1995). These surveys have detected lynx in the past (Wydeven 1998, Wydeven et al 1995). Therefore these snow track surveys are being used to search for evidence of lynx in the state

METHODS

Lynx and other carnivores were searched for along snow covered forest roads in 80 survey blocks across 19 northern counties (Figure 1). Surveys were conducted as described by Wydeven et al (1996). Generally snow covered roads were intensively searched for medium and large carnivores 1-4 days following snowfalls. Survey blocks averaged about 200 mi^2 each, and were traversed by slowly driving as many of the snow covered roads within the block as possible. The survey emphasis was on blocks located within the most suitable habitat for wolves and other carnivores sensitive to human activities (Mladenoff et al. 1995). Tracks of lynx and other rare carnivores were carefully measured and photographed (Halfpenny et al. 1995).

RESULTS

A total of 3696.5 miles of track surveys were conducted by DNR trackers in 80 survey blocks in northern Wisconsin (Table1, Figure 1). Two sets of lynx tracks were detected in survey block 82, in Vilas County. The most abundant carnivores were fisher (*Martes pennanti)* which were detected at a rate of 16.0 per 100 miles of survey. The 4 canids were the next most abundant carnivores including coyotes (*Canis latrans* 14.1 / 100 miles), gray wolf (*Canis lupus* 9.4 / 100 miles), fox (*Vulpes vulpes & Urocyon cinereoargenteus* 8.8 /100 miles), and dog (*Canis familiaris* 8.0 / 100 miles). Rates of track detection were lower than 2003 for most carnivores, except wolves had increased, otter were similar, and the first observation of lynx tracks in 5 years.

Two probable lynx tracks were detected by Ron Schultz on 22 March 2004 in NW SW Section 36, T42N, R10E in Vilas County (Latitude 46. 0753 / Longitude 89.1981). It appeared that 2 lynx were traveling together. Schultz followed the tracks for about 2.1 miles. Snow conditions allowed only one good measurement, consisting of a minimum outline of 6.5 cm length and 7.1 cm width. Measurement of variable outline was 9 cm long by 10.2 cm wide. Urine samples were collected from snow, but could not be verified as lynx. Attempts were made for follow-up surveys and consideration was given to attempt trapping, but snow melted soon afterwards. It could not be determined if these 2 represented a female and her kitten or a male following a female; in either case this may represent the possibility of breeding lynx.

Felid track observations included 97 bobcat (*Lynx rufus*) or 2.6/ 100 miles, 5 cats (*Felis catus)* at 0.1 / 100 miles, and 2 Canada lynx 0.1/ 100 miles. No cougar (*Puma concolor*) tracks were found and none have been detected during any previous years. Bobcat detection rate was less than 2003 (4.6 / 100 miles), but similar to 2002 (3.0/ 100 miles). Bobcat were detected in 41 survey blocks (51.2%).

More intense efforts to search for lynx were made in the Nicolet National Forest where lynx had been detected between 1993 and 1997 (Wydeven 1998). Two lynx were detected along 572.2 miles of survey route at a rate of 0.3 lynx per 100 miles (Table 2). This was the first detection of lynx in the Nicolet since 20 January 1997 (Wydeven 1998). Bobcats were detected at a rate of 6.1 bobcat / 100 miles, slightly higher than 2003, when 5.5 bobcat / 100 miles were found. Ratio of lynx:bobcat detection was 1:17.5.

DISCUSSION

The 2 lynx found this year in northeast Vilas County were the first lynx detected since 1999 (Figure 2), when one was detected in western Douglas County along the Minnesota border (Wydeven et al. 1999). Four observations were detected in the Nicolet National Forest between 1993-1997 including: 17 February 1993, 28 January 1995, 1 March 1996, and 20 January 1997 (Wydeven 1998). All these observations were tracks of single animals, and close to Alvin in Forest County. The lynx track observation in 2004 was just to the west of the Nicolet Forest, and about 20 miles west of the sightings near Alvin.

The presence of 2 lynx together might indicate possibility of breeding activity. Normally only adult females and their offspring travel together, or adult males and females travel together during breeding season, but sometimes adult lynx hunt together (Mowat et al. 2000). The

detection in late winter did not allow many follow-up surveys. Additional surveys will be done in the area next winter, and if lynx continue to be found in the area, livetrapping and radio-collaring will be attempted.

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Table 1. Carnivore track surveys conducted by Wisconsin DNR personnel in northern Wisconsin, winter 2003-2004.

Block	Miles	Hours	Coyote	Dog	Fox	Wolf	Fisher	Otter	Bobcat	Cat	Lynx	Raccoon
1	22.6	4.8	4	10	0	2	2	3	1	0	0	0
2	39.8	8.9	2	2	7	9	9	1	2	0	0	1
3	17.6	5.2	5	2	2	5	5	3	0	0	0	0
6	2.3	0.7	0	0	1	3	2	2	2	0	0	0
7	4.5	1.3	3	0	1	4	7	1	1	0	0	0
9	64.2	11.7	13	10	6	14	12	0	0	0	0	1
10	91.1	11.3	0	2	3	4	7	1	0	0	0	1
11	15.8	4.1	12	6	14	3	12	1	2	0	0	3
13	15.1	3.5	5	0	1	1	1	5	1	0	0	0
14	63.9	6.2	5	5	17	6	5	14	0	0	0	0
18	137	11.3	5	0	22	0	8	4	0	2	0	4
19	35.2	5	0	4	2	0	7	1	0	1	0	0
20	12.4	4.3	2	0	1	1	2	0	0	0	0	1
23	28.1	7.2	3	2	0	0	1	2	1	0	0	2
24	74.1	15.6	16	0	10	8	21	6	3	0	0	0
25	47.2	16.4	9	4	3	18	9	1	2	0	0	0
26	37.4	10	3	4	2	5	3	0	1	0	0	1
27	24.8	3	0	4	0	5	0	0	0	0	0	0
28	59.9	9	0	4	0	5	1	0	0	0	0	0
29	43.1	5.5	3	1	0	1	1	0	1	0	0	0
30	21.6	2.1	14	1	11	0	17	0	1	0	0	0
31	4.4	1.2	0	0	3	4	5	0	0	0	0	0
32	51	4.1	1	0	0	0	2	0	0	0	0	0
33	103.1	14.6	41	7	11	1	22	0	7	0	0	0
34	21	6	9	0	7	5	12	0	6	0	0	0
35	62.2	12.5	7	2	10	8	9	0	0	0	0	0
36	78.5	14.1	6	2	8	21	6	3	1	0	0	0
37	161.7	32.6	4	8	12	17	16	6	0	0	0	0
38	323.4	65.2	17	8	22	24	49	2	2	0	0	0
40	122.7	26.1	25	10	22	23	41	13	1	0	0	1

Table 1. continued

Block	Miles	Hours	Coyote	Dog	Fox	Wolf	Fisher	Otter	Bobcat	Cat	Lynx	Raccoon
41	107.6	23.3	2	14	3	10	1	0	0	0	0	0
42	43.7	7	3	0	2	3	29	1	0	0	0	0
43	11.7	7	6	2	11	2	19	3	0	0	0	2
44	36.4	6	6	3	2	8	1	0	0	0	0	0
46	35.5	7.7	5	9	0	2	3	0	3	1	0	0
47	46.4	7.5	4	1	1	6	2	0	0	0	0	0
48	62.1	9.7	9	4	2	8	5	1	0	0	0	0
49	28.7	7	1	4	1	9	1	0	1	0	0	0
50	27.2	3.3	1	3	0	0	0	0	0	0	0	0
51	60.9	14.1	8	3	0	14	5	0	2	0	0	0
52	50.7	7.2	9	4	4	2	14	0	3	0	0	0
53	41.9	6.7	9	0	1	3	2	4	3	0	0	0
54	43.4	12.8	3	10	5	5	13	4	1	0	0	0
55	43.6	10.2	1	4	1	12	3	1	0	1	0	0
56	30.7	4.8	0	2	2	5	0	1	0	0	0	0
57	82.3	17.5	3	6	3	6	10	5	1	0	0	0
58	4.2	1.5	0	0	0	2	0	0	0	0	0	0
59	30.6	6	4	2	3	0	6	2	0	0	0	0
63	11.9	3.5	1	4	1	0	3	2	1	0	0	0
64	26.7	6	2	11	0	0	4	2	0	0	0	0
65	42.6	6	4	3	1	2	6	4	4	0	0	0
67	9.2	2.9	0	3	0	0	2	0	1	0	0	0
68	31.7	8.2	4	1	3	10	5	0	0	0	0	0
69	17.5	1.5	1	0	0	4	0	0	0	0	0	0
70	118.5	14	2	0	0	17	1	4	0	0	0	0
71	26.9	4.2	4	1	5	0	6	1	0	0	0	0
76	48.9	5.2	7	0	2	0	5	5	0	0	0	0
77	41.5	6.5	4	3	1	4	0	2	2	0	0	0
78	24	4.5	3	9	2	0	6	0	0	0	0	0
79	16.2	4	2	2	0	1	4	1	1	0	0	0
80	24.2	7.3	5	2	4	0	6	0	0	0	0	0

Table 1. continued

Block	Miles	Hours	Coyote	Dog	Fox	Wolf	Fisher	Otter	Bobcat	Cat	Lynx	Raccoon
81	40.8	10.5	2	6	1	2	7	0	4	0	0	0
82	17.5	5	4	7	0	0	6	0	4	0	2	0
83	41.1	7.2	12	10	4	0	9	1	5	0	0	0
84	54.4	7.8	27	6	3	3	46	3	7	0	0	0
85	60.5	13.4	22	7	26	0	18	3	3	0	0	0
86	48.9	7	4	2	0	0	4	0	0	0	0	0
92	27.8	5	3	7	2	3	3	0	0	0	0	0
93	44.4	6.5	6	11	2	0	8	0	1	0	0	0
94	19.4	1	1	4	0	0	1	0	0	0	0	0
95	42.2	6.3	11	3	0	0	4	1	1	0	0	1
96	36.6	8	12	7	6	2	6	0	0	0	0	0
97	11	3.5	7	4	1	0	0	0	1	0	0	0
98	56.9	10.1	18	4	6	2	9	0	6	0	0	0
99	22.6	5.5	10	0	5	0	5	4	2	0	0	0
100	36.1	7.1	22	2	3	0	4	0	5	0	0	0
101	18.8	2.5	8	1	0	0	1	0	0	0	0	0
103	19.2	4.4	1	1	0	0	1	0	0	0	0	0
104	14.8	3.7	5	0	1	0	1	0	0	0	0	0
107	70.4	10.2	20	4	6	4	2	0	0	0	0	0
Totals	**3696.5**	**681.3**	**522**	**294**	**324**	**348**	**591**	**124**	**97**	**5**	**2**	**18**
#/100 miles			**14.1**	**8.0**	**8.8**	**9.4**	**16.0**	**3.4**	**2.6**	**0.1**	**0.1**	**0.5**

Table 2. Lynx-Wolf-Carnivore Surveys conducted by Wisconsin DNR personnel on the Nicolet National Forest, winter 2003-2004.

Block	County	Miles	Hours	Coyote	Fox	Wolf	Fisher	Marten	Bobcat	Lynx
82	Vilas	17.5	5	4	0	0	6	0	4	2
83	Forest/Vilas	41.1	7.2	12	4	0	9	2	5	0
84	Forest	54.4	7.8	27	3	3	46	18	7	0
85	Forest/Oneida	60.5	13.4	22	26	0	18	13	3	0
86	Forest/Oneida	48.9	7	4	0	0	4	0	0	0
91	Oconto	0	0	0	0	0	0	0	0	0
92	Lang/Forest/Ocont	27.8	5	3	2	3	3	0	0	0
93	Forest/Langlade	44.4	6.5	6	2	0	8	0	1	0
94	Forest	19.4	1	1	0	0	1	0	0	0
95	Forest	42.2	6.3	11	0	0	4	5	1	0
96	Forest/Florence	36.6	8	12	6	2	6	2	0	0
97	Forest/Florence	11	3.5	7	1	0	0	0	1	0
98	Forest/Florence	56.9	10.1	18	6	2	9	0	6	0
99	Florence	22.6	5.5	10	5	0	5	0	2	0
100	Florence/Marinette	36.1	7.1	22	3	0	4	0	5	0
101	Forest/Marinette	18.8	2.5	8	0	0	1	0	0	0
102	Forest/Marinette	0	0	0	0	0	0	0	0	0
103	Oconto/Marinette	19.2	4.4	1	0	0	1	0	0	0
104	Oconto/Marinette	14.8	3.7	5	1	0	1	0	0	0
	TOTALS	**572.2**	**104**	**173**	**59**	**10**	**126**	**40**	**35**	**2**
	#/100 mi.			**30.2**	**10.3**	**1.7**	**22.0**	**7.0**	**6.1**	**0.3**
	mi/carnivore			**3.3**	**9.7**	**57.2**	**4.5**	**14.3**	**16.3**	**286.1**

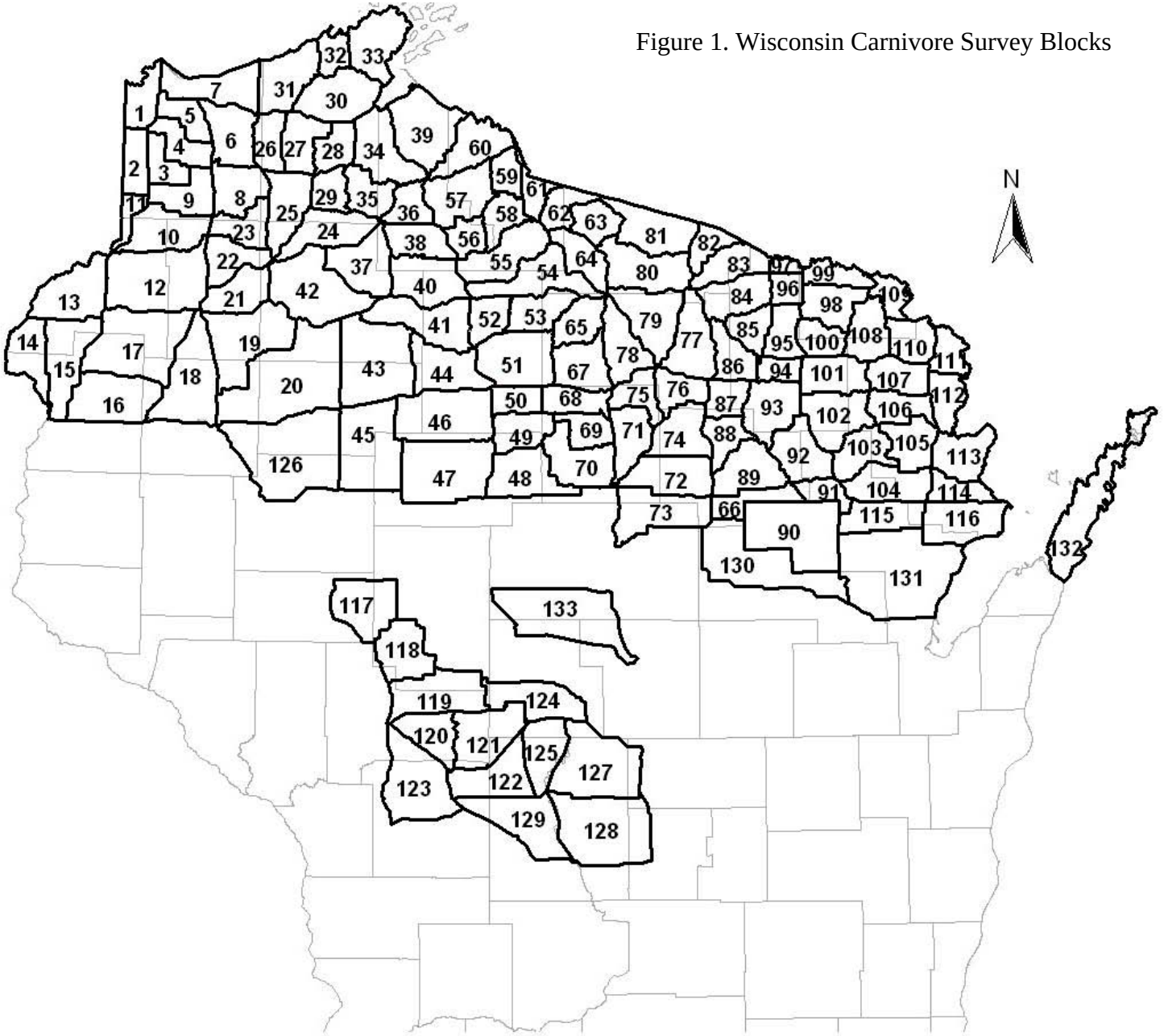

Figure 1. Wisconsin Carnivore Survey Blocks

Figure 2. Lynx tracks and lynx mortalities in Wisconsin 1991-2004